VASSAR STUDENTS' AID SOCIETY.

THE first annual meeting of the Vassar Students' Aid Society was held at Sherry's, Fifth Avenue and 37th Street, New York, on Saturday, Oct. 25, 1890.

The meeting was called to order by the president, Mrs. J. R. Kendrick, who emphasized in a brief address the relation between the work of this society and the general movement of the day toward the wider extension of the higher education, and spoke of the enduring nature of its task.

The secretary reported that the society now numbers 17 life-members and 374 annual members, including residents of Mexico, Germany, South America, and India. Many encouraging letters were received from former students, expressing sympathy with the objects of the society, and no little pleasure in being allowed to claim a place among the daughters of Vassar and in the opportunity for acknowledging their indebtedness for the benefits received at her hands. The work of securing new addresses has been continued through the generosity of a member who gave printed lists covering the years from 1865 to 1869. A non-graduate who received a copy of one of these wrote forty letters, and obtained information in regard to seventeen former students,—an incident which illustrates not only the amount of work involved in this search, but also the general willingness to help, which has made possible the measure of success the society has achieved.

In March the state of the treasury warranted the announcement of a scholarship, to be awarded in June, 1890 As the society represented widely separated sections of the country, it was deemed fairest to all to open as widely the competi ion for the scholarship. The late announcement prevented the majority of the applicants from adapting their preparation to the college requirements, and but two passed the examination unconditionally. Both are now in college, the second as the recipient of aid from the college.

The treasurer reported a total of $751.98 received since October, 1889,—from 17 life-members $425, from annual members $326.98; cash paid for scholarship, $200; for printing, postage, and sundries, $117.93; and a balance in treasury, including life-membership fees, of $434.05.

The organization of a Minnesota branch at St. Paul, Nov. 22, 1889, has been followed by the formation of branches in Boston, New York, Brooklyn, Poughkeepsie, Orange (N.J.), and Louisville (Ky.), and the appointment of committees in other centres. These branches reported the details of their organization, their plans for extending their influence by the admission of associate members and by giving series of lectures, and made announcement of local scholarships as follows:—

The Boston branch, to residents of localities represented by the branch, a scholarship of $200 for competition in June, 1891. Application must be made to Mrs. Frank H. Monks, Monmouth Street, Brookline, Mass.

Brooklyn branch, to residents of Long Island, a scholarship of $100, tenable four years, to be awarded in June, 1891. Application should be made to Mrs. Charles O. Gates, 100 Greene Avenue, Brooklyn.

Kentucky branch, to residents of the State, a scholarship, probably of $400, for competition in June, 1891; application to be made to Mrs. Patty B. Semple, 1222 Fourth Avenue, Louisville.

The New York and Poughkeepsie branches anticipate being soon able to announce one each for award in June.

The parent society also offers two scholarships, of $200 each, for general competition in June, 1891 and 1892 respectively. Application must be made to Miss Jessie F. Smith, South Weymouth, Mass.

Application for these scholarships must be made before May 10

The balloting to fill the vacancies caused by the expiration of terms of office resulted in the election of Professor Abby Leach, Mrs. George H. Mackay, Professor Mary W. Whitney, and Miss Rachel Jacobs.

Invitations to the public meeting had been sent to about five hundred friends of education and of Vassar. Dr Mary Taylor Bissell presided. In a stimulating address, Dr. Taylor dwelt upon the advantages of the principle of co operation in the bestowal of aid to students, and pointed out the importance of extending assistance to those who were willing to prove their capacity by entering a competitive examination, and who showed their desire to be self-reliant in their willingness to accept these scholarships in the form of a loan.

THE PRESERVATION OF TIMBER.

IN countries where timber is cheap, labor expensive, and money scarce, it does not pay to apply preservative substances to wood to delay or prevent its natural decay. A very rapid calculation will show that wages, cost of chemicals, and compound interest together, represent a sum greater than the cost of frequent renewals. However, the wastefulness of settlers in new countries, and the steady accumulation of capital in the old ones, are rapidly doing away with this condition of affairs. Timber is growing both scarce and dear, while increased means of communication have reduced wages in places formerly on the outskirts of civilization. Even in this country, where timber was once so plentiful that care was not even exercised to cut it at a period of the year when it was at least filled with sap, and when "seasoning" was never thought of in the hurry of railway construction, considerable attention is now being given to preservative processes. Unfortunately the desire to carry them out cheaply has often brought them into discredit. Homœopathic quantities of antiseptics have been not unfrequently used, the action being confined to the outside of the timber, and being quickly dissipated by the action of air and moisture.

Engineering of Nov. 21 gives a history of attempts at prolonging the life of timber, from which we take the following:—

In 1836, Dr. Bouchorie, a French chemist, tried to impregnate timber by vital suction; that is he tapped the tree, and allowed the ascending sap to carry up a preserving solution. This, however, did not give satisfactory results, and in place of it a cap was supplied to the end of a newly cut log, and the solution forced along the sap ducts by hydraulic pressure Sulphate of copper was the chemical used; and, when it was applied to newly felled timber, it gave good results. Lime water has been tried, and also salt, but the effects have not repaid the trouble. There is a strip of road in the Union Pacific Railroad, in Wyoming Territory, where the sleepers do not decay at all. The analysis of the soil shows that it contains sodium, potassium chloride, calcium, and iron, which act as preserving agents. An inventor named Foreman brought out a process by which dry arsenic and corrosive sublimate were inserted in holes in sleepers, and covered with plugs. The materials became dissolved, and effloresced on the surface, when the cattle licked them and died by scores. The farmers rose in arms and forced the railroad company to burn all the sleepers. Many other attempts might be narrated: indeed, the entire list of antiseptic substances appear to have been ransacked to find something both cheap and effective.

The chief processes that have been employed for the preservation of timber are kyanizing, burnettizing, and creosoting; that is, impregnation with bichloride of mercury, with sulphate of zinc, and with creosote. Many others have been proposed and tried, but only these three have survived. The first seems to be well adapted for bridges, or for timber exposed to weather alone, and not to constant moisture. Examples have been found in this country which were in a good state of preservation after twenty eight years' exposure; but, when kyanized timber has been used for railway sleepers and pavements, it has had only a doubtful success, probably in consequence of the washing-out of the corrosive sublimate. The wood is allowed to steep one day for each inch in thickness of its least dimension, and one or two days in addition. The solution contains 1 per cent by weight of corrosive sublimate and from four to five pounds of this are absorbed per thousand feet, board measure. Burnettizing may be performed in the same way, sulphate of zinc being the chemical employed; but it is usual to steam the timber first to open the pores, and then to subject it to a vacuum to withdraw the sap. If this be not done, the timber must be stored for a considerable time to allow it to dry naturally. When treated, the wood should not be placed in exposed situations, such as bridges, or else the zinc will be washed out and leave it unprotected. This is partic-

ularly true when weak solutions are used; and when the potency is greatly increased, the tenacity of the timber is impaired. In Germany 1.91 per cent is considered the proper strength for railway-sleepers. Several suggestions have been made to confine the zinc in the timber. Mr. W. Thelmany proposed to subject the timber to a subsequent bath of chloride of barium, with the view of producing an insoluble sulphate of baryta. It is doubtful, however, if the re-action would go on in the minute sap-ducts of the wood. Another process is that of Mr. Wellhouse, who also employs a double solution, the first being chloride of zinc to which a little glue is added, and the second a solution of tannin. It is claimed that the latter, upon coming in contact with the glue, forms small particles or films of artificial leather, which plug up the mouth of the sap ducts, and prevent the zinc being washed out. Certain experiments which have been made seem to confirm the idea. Another plan consists in using a solution of chloride of zinc and gypsum. The gypsum crystallizes and hardens inside the sap-ducts, and forms partitions to hold the zinc within the cells There are three burnettizing works in the United States; and the cost of the process is about five dollars per thousand feet board measure, or from twenty to twenty-five cents a sleeper.

Creosoting is so well understood that it scarcely needs description. It is in almost universal use for sleepers for English railways, and no other process has been commercially proved capable of resisting the *Teredo navalis* and *Limnoria tenebrans*. In England and Holland from ten to twelve pounds of creosote-oil per cubic foot of timber are found sufficient for harbor purposes; the French use nineteen pounds for the same purpose; and a similar quantity has been found necessary in the Gulf of Mexico, where the marine worms cut off an unprepared pile in eight months. The creosoting process needs to be well done to be effective, and for ordinary purposes from eight to twelve pounds are required per cubic foot of timber.

It was generally considered that the presence of heavy oils in the creosote was objectionable, and therefore engineers were accustomed to specify that not more than 10 per cent should be present. This view has been controverted by others, who take the view that it is only the heavy oil which can be relied upon to exert a continuous preservative action, the creosote itself being liable to become dissipated in course of time. This view receives confirmation by the good results of the preservative process introduced by Mr. Henry Aitken of Falkirk. This consists simply in soaking timber in melted naphthaline for a period varying from two to twelve hours, depending on the bulk of the piece. A temperature of 180° to 200° F. is all that is required for the process, and is most easily obtained by placing steam-pipes in the bottom of the tank which contains the material. Simple as the process is, that is not its chief merit. A more valuable feature is that it can be applied to green timber, thus doing away with the long and expensive process of seasoning. The naphthaline makes its way through the pores of the wood, decomposing the albuminoid compounds, and displacing both sap and water. It then becomes fixed, and the whole substance is permeated with solid antiseptic of a permanent character.

Aitken's process was introduced in 1882, and three years afterwards an account was given in *Engineering* (July 3, 1885) of certain trials that had been made to demonstrate its utility. Among these were mentioned the construction of some railway-wagons for the North British Railway. These were made from logs taken direct from the timber-pond and naphthalized. The logs were cut up and worked in the usual way; for, unlike creosoting, the Aitken process does not render timber more difficult to cut, neither does it interfere with painting or varnishing. The wagons have, up to the present, shown no signs of decay, and all the joints are tight. When taken apart, the tenons still show the chisel marks, demonstrating that they have not been working in the mortises. On the same railway there were placed sleepers and keys, and after seven years these are still perfectly fresh. One of these keys is in perfect condition, and does not appear to have been touched since it was first driven. Four years ago fencing-slabs of poor Swedish timber, some already beginning to decay, were naphthalized and put down, and to-day they are in as good a condition as ever.

In coal-pits equally good results have been obtained; and larch timbering, which usually becomes quite rotten in five years, has remained perfectly sound. White ants and the *Teredo* do not find naphthaline more palatable than creosote, for samples laid in the harbor of Colombo have been carefully avoided by both pests.

In England there are only two methods of preserving timber in general use; namely, careful seasoning and creosoting. The latter is only applicable to rough work, such as sleepers, fencing-posts, and the like; while the former is expensive, and is only moderately successful in the case of soft timber. It remains to be seen if the Aitken process will take rank with the others and obtain general acceptance. It is full of promise, and, if it fulfils only a part of what appears to have been proved for it experimentally, will be a valuable addition to the means of fighting the deteriorating influences of time and weather. For many purposes hard woods are employed simply on account of their great durability; the cheap, soft woods being, in other respects, equally well suited. If the soft woods can have their lives prolonged, a great saving can be effected in most cases. The sudden seasoning said to be effected by naphthaline, without sensibly hardening the wood or rendering it difficult to work, deserves to be carefully investigated, as it would liberate an immense amount of capital now lying idle, besides preventing the annoyance resulting from the use of half-seasoned timber. Every thing that offers to cheapen production is worth trying in these times of fierce international competition.

THE FORESTS OF ANNAM.

THE forests of Annam have recently, says the French *Moniteur Official des Commerce*, been explored by one of the officials of the Forests Department, who was instructed by the French Government to examine and report upon them, particularly with reference to their extent and the possibility of their practical utilization. The first information obtained upon the subject relates to the forests of Nghê-An, in the province of Vinh. These forests, says the *Journal of the Society of Arts* (London), quoting from the above-named periodical, are situated in the mountains and at some considerable distance from the coast, covering almost the whole of the district watered by the Song Ca River, commencing at Luong, and its principal tributary the Song-Cong. The lower vegetation covering the soil, and the almost impenetrable network of tropical climbers which reach up to the higher branches of the trees, render it extremely difficult to penetrate far into the heart of the forests.

The woods met with in the forests of Nghê-An are very varied and numerous; but the most important, and those in which considerable trade is carried on, are the *go-liem*, or iron wood, and the *govan-tam*. The other descriptions of wood, although often more valuable, are much rarer, and therefore less frequently met with on the various markets. The *go-liem*, or iron wood, is hard but brittle, of a brownish-red color, and would last a very long time were it not for the injuries inflicted upon it by white ants, which attack and speedily destroy it. In spite of this, it is eagerly sought after, and is of great utility, being employed in the construction of columns for pagodas and houses, piles for bridges and platforms, furniture, coffins, junks, etc. Its weight is about 1,100 kilograms the cubic metre. It takes a good polish, and hardens in course of time. It is brought to market in logs of from five to eight metres in length, and sometimes, but less frequently, from ten to twelve metres in length. The *go-liem* is largely exported. The *govan-tam* is a yellowish-white wood, with a very fine grain. It is easily worked, is very light, and polishes well. It is used for the common kind of furniture, mouldings, boxes, and ordinary coffins, the hulls of junks and sampans, oars, etc. Its most frequent use is in ship-building.

Beyond these two descriptions, which, from a commercial point of view, are the most important, there are a number of other woods little used by the Annamites, either on account of their scarcity, or because they are considered to be little capable of being worked up. They are, however, says M. Thomé, well deserving of some attention, by reason of the fact that Europeans might find a use for this excellent raw material which the Asiatic appear incapable of doing.